Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte RICHARD J. ERICSON

Appeal No. 2003-0404
Application No. 09/162,821

ON BRIEF

Before STAAB, McQUADE, and NASE, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 2 to 6, 13, 14, 16 to 20, 27 and 28. Claims 8 to 12, 15 and 22 to 26 have been withdrawn from consideration. Claims 7 and 21 have been objected to as depending from a non-allowed claim. Claim 1 has been canceled.

We AFFIRM-IN-PART.

BACKGROUND

The appellant's invention relates to an elevator system including a drive motor located in the hoistway below the elevator car (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Murtaugh	US 12,640	April 3, 1855
Gale, Sr.	US 1,132,769	March 23, 1915
Habano	JP 49-20811[1]	May 28, 1974
Aulanko et al. (Aulanko)	WO 98/29326	July 9, 1998

Claims 2, 5, 6, 16, 19 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano.

Claims 3, 17 and 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Murtaugh.

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[1] In determining the teachings of Habano, we will rely on the translation provided by the appellant.

Claims 13, 14, 27 and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Aulanko.

Claims 2 to 4 and 16 to 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Murtaugh in view of Gale and Habano.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the answer (Paper No. 15, mailed June 1, 2001) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 14, filed March 26, 2001) and reply brief (Paper No. 17, filed August 6, 2001) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591,

18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Moreover, in evaluating such references it is proper to take into account not only the specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

Teachings of the applied prior art

Gale

Gale discloses a traction elevator system (see Figure 1) having an elevator car C; counterweights 4; overhead sheave 1; connected cables 3 which pass over the overhead sheave 1 and interconnect the elevator car C to the counterweights 4; a hoisting motor M; a driving pulley 16 driven by the motor M; guide pulleys 7, 17 and 18; weight 12; and a belt 11 fastened to the bottom of the elevator car C and driven by the driving pulley 16 and guided by the guide pulleys 7, 17 and 18 to be fastened to the weight 12. Figure 7 of Gale depicts a means for automatically keeping a constant tension on the driving belt 11. In this embodiment, the motor M is movable on slide rails 31 by turning screw 30 and the weight 12 slides in guides 13'. Additionally, the belt 11 is guided by idler pulley 27 carried by the weight frame 12' from the driving pulley 16 to the counterweight 4. As the belt 11 gradually stretches, the weight 12 and the

attached pulley 27 will move lower and lower until it is necessary to bodily move the motor M to the right by means of the screw 30.

Habano

Habano's invention pertains to a method for manufacturing a ribbon-form rope composed of a plurality of twisted ropes set side by side and integrally embedded in rubber or synthetic resin to form the ribbon shape. Habano teaches that:

> As a type of special rope, this type of ribbon-form rope has been used as hoisting rope or balance rope in elevators, etc. In order to eliminate the back-twisting tendency of the conventional twisted ropes, the twisted ropes are combined to form a flat belt structure. This type of ribbon-form rope is routinely used.

Murtaugh

Murtaugh teaches the use a dumb waiter which is suspended by cords and weights and moved up and down suddenly by the hand of an attendant. As shown in Figures 1-2, the dumb waiter includes a waiter A; a weight R; a cord C attached fast to an arbor U and carried up to and around pulleys c, c on the bottom of the waiter and then down to a large pulley d and wound once around the same and then carried along horizontally until it arrives at the pulley e under which it is passed and carried up to and around a pulley e' on the bottom of the weight R and then down again and secured fast to the bottom of the case A; and a cord D attached fast to the top of the box A' and

carried down under pulleys f, f and up again and around a pulley g and down again to and around a pulley y' on the top of the weight R and up again and secured to the top of the case A'. Murtaugh teaches (page 1, lines 51-54) that the suspending of the waiter and weight between two cords arranged as shown in the drawings enables one to dispense with the use of a crank in raising the waiter.

Aulanko

Aulanko discloses a traction sheave elevator having steel suspension ropes 3 attached to the top of an elevator car 1 and passing over a diverting pulley 4 to a counterweight 2. A substantially thin and flexible hoisting rope 5 is attached to the top of counterweight 2, passed over a traction sheave 7 of a drive machine 6 and down to and around a diverting pulley 8 and up to the underside of the counterweight 2. The hoisting rope has a structure consisting of a number of bundles of synthetic fibers (e.g., aramid fibers) positioned side by side and separated from each other all sheathed in a plastic material (e.g., polyurethane) such that the rope cross section has a greater width than thickness. Aulanko teaches (page 4) that the thin and flat hoisting rope of his invention provides advantages over the round steel and synthetic hoist ropes of the prior art. One advantage of the lightweight thin flat rope is that it allows for smaller diameter sheaths/pulleys. Aulanko further teaches (page 2) that:

> Specification EP 672 781 A1 presents a round elevator suspension rope made of synthetic fibers. Topmost on the outside it has a sheath layer

surrounding the outermost strand layer. The sheath layer is made of plastic, e.g. polyurethane. The strands are formed from aramid fibers.

Claim 16

We sustain the rejection of claim 16 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano.

Claim 16 reads as follows:

> An elevator system comprising:
> an elevator hoistway;
> an elevator car located in the hoistway; and
> a drive motor located at a bottom portion of the hoistway, the drive motor being coupled to the elevator car via at least one flat rope for moving the elevator car along the hoistway, wherein the at least one flat rope includes a suspension rope coupled to the elevator car and a drive rope engaging the drive motor for moving the elevator car.

Based on our analysis and review of Gale and claim 16, it is our opinion that the only difference is the limitation that the at least one flat rope include a suspension rope coupled to the elevator car as well as a drive rope engaging the drive motor for moving the elevator car.[2] In that regard, we note that Gale's cables 3 (i.e., suspension ropes) are not disclosed as being flat and from Figures 1-2 would appear to be round.

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[2] After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

With regard to this difference, the examiner determined (answer, p. 6) that it would have been obvious to one of ordinary skill in the art to modify Gale's cables 3 (i.e., suspension ropes) to be a flat rope as suggested and taught by Habano. We agree.

The appellant argues through both briefs that there is no motivation in the teachings of Habano for a person of ordinary skill in the art to have modified Gale to arrive at the claimed subject matter. In our view, there is sufficient motivation in the teachings of Habano for a person of ordinary skill in the art at the time the invention was made to have modified Gale to arrive at the claimed subject matter. While it is true that Habano mostly discusses the use of a ribbon-form rope as a balance rope in elevators, Habano does specifically teach that the ribbon-form rope can be used as a hoisting rope in elevators. This specific teaching of Habano cannot be ignored. In our view, Habano's teachings that a ribbon-form rope can be used as a hoisting rope in elevators and that the ribbon-form rope eliminates the back-twisting tendency of conventional twisted ropes provides ample motivation for a person of ordinary skill in the art at the time the invention was made to have replaced Gale's cables 3 with a ribbon-form rope as taught by Habano.

For the reasons set forth above, the decision of the examiner to reject claim 16 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano is affirmed.

Claims 2, 5 and 19

The appellant has have grouped claims 2, 5, 16 and 19 as standing or falling together.[3] Thereby, in accordance with 37 CFR § 1.192(c)(7), claims 2, 5 and 19 fall with claim 16. Thus, it follows that the decision of the examiner to reject claims 2, 5 and 19 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano is also affirmed.

Claim 20

We sustain the rejection of claim 20 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano.

Claim 20 adds to parent claim 19 the further limitation that the elevator system further includes a tension applying mechanism for imparting a downward force on the deflector sheave in order to maintain the drive rope in a taut condition.

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[3] See page 4 of the appellant's brief.

In the examiner's view (answer, pp. 11-12), the claimed tension applying mechanism is met by Gale's means for automatically keeping a constant tension on the driving belt 11 depicted in Figure 7. The appellant disagrees (brief, p. 9; reply brief, p. 4) arguing that Gale's means for automatically keeping a constant tension on the driving belt 11 depicted in Figure 7 does not impart a downward force on the deflector sheave in order to maintain the drive rope in a taut condition.

In our view, the claimed tension applying mechanism is readable on Gale's weight 12 and frame 12' which applies a downward force on pulley 27 thereby maintaining the belt 11 in a taut condition until it becomes necessary to bodily move the motor M to the right by means of the screw 30. Accordingly, the decision of the examiner to reject claim 20 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano is affirmed.

Claim 6

The appellant has grouped claims 6 and 20 as standing or falling together.[4] Thereby, in accordance with 37 CFR § 1.192(c)(7), claim 6 falls with claim 20. Thus, it follows that the decision of the examiner to reject claim 6 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano is also affirmed.

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[4] See page 5 of the appellant's brief.

Claim 17

We sustain the rejection of claim 17 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Murtaugh.

Claim 17 adds to parent claim 16 the further limitation that the suspension rope is coupled at its first and second ends to an upper portion of the hoistway.

In the examiner's view (answer, p. 6), the teachings of Murtaugh would have made it obvious at the time the invention was made to a person of ordinary skill in the art to have further modified Gale's cables 3 (i.e., suspension ropes) to be coupled at its first and second ends to an upper portion of the hoistway. The appellant argues (brief, p. 10) that the motivation to further modify Gale to arrive at the subject matter of claim 17 does not come from the teachings of the applied prior art. We do not agree.

In our view, Murtaugh clearly teaches a suspension rope which is coupled at its first and second ends to an upper portion of the hoistway. While Murtaugh does not explicitly inform us as to why this is done, it is our opinion that one skilled in the art would infer from Murtaugh's teaching that the suspension rope is coupled at its first and second ends to an upper portion of the hoistway to provide a mechanical advantage of 2:1. Since the modified cables of Gale would have a mechanical advantage of 1:1, it

would have been obvious at the time the invention was made to a person of ordinary skill in the art to have coupled the modified cables of Gale at its first and second ends to an upper portion of the hoistway to provide a mechanical advantage of 2:1 for the self evident advantages thereof.

For the reasons set forth above, the decision of the examiner to reject claim 17 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Murtaugh is affirmed.

Claims 3 and 18

The appellant has have grouped claims 3, 17 and 18 as standing or falling together.[5] Thereby, in accordance with 37 CFR § 1.192(c)(7), claims 3 and 18 fall with claim 17. Thus, it follows that the decision of the examiner to reject claims 3 and 18 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Murtaugh is also affirmed.

Claims 13, 14, 27 and 28

Dependent claims 13, 14, 27 and 28 have not been separately argued by appellant as required in 37 CFR § 1.192(c)(7) and (8)(iv) apart from the dependency on

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[5] See page 4 of the appellant's brief.

claims 2 and 16 (brief, pp. 10-11). Accordingly, we have determined that these claims must be treated as falling with their respective independent claim. See In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987). Thus, it follows that the decision of the examiner to reject claims 13, 14, 27 and 28 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Aulanko is also affirmed.

Claims 2 to 4 and 16 to 19

We will not sustain the rejection of claims 2 to 4 and 16 to 19 under 35 U.S.C. § 103 as being unpatentable over Murtaugh in view of Gale and Habano.

The appellant argues (brief, pp. 11-12) that the applied prior art does not suggest modifying Murtaugh to arrive at the claimed subject matter. We agree. In our view, the teachings of Gale and Habano would not have suggested modifying the dumb waiter of Murtaugh in the manner proposed by the examiner (answer, pp. 7-8) to arrive at the claimed elevator system. In that regard, the complete redesign of the dumb waiter of Murtaugh to be a powered elevator utilizing at least one flat rope as claimed can only stem from hindsight knowledge derived from the appellant's own disclosure. The use of such hindsight knowledge to support an obviousness rejection under 35 U.S.C. § 103 is, of course, impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock,

Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

For the reasons set forth above, the decision of the examiner to reject claims 2 to 4 and 16 to 19 under 35 U.S.C. § 103 as being unpatentable over Murtaugh in view of Gale and Habano is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 2, 5, 6, 16, 19 and 20 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano is affirmed; the decision of the examiner to reject claims 3, 17 and 18 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Murtaugh is affirmed; the decision of the examiner to reject claims 13, 14, 27 and 28 under 35 U.S.C. § 103 as being unpatentable over Gale in view of Habano and Aulanko is affirmed; and the decision of the examiner to reject claims 2 to 4 and 16 to 19 under 35 U.S.C. § 103 as being unpatentable over Murtaugh in view of Gale and Habano is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

LAWRENCE J. STAAB
Administrative Patent Judge

JOHN P. McQUADE
Administrative Patent Judge

JEFFREY V. NASE
Administrative Patent Judge

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